

IN THE CLAIMS

Please amend claims 1, 3, 4, 7-10, 12-16, 18, 19, 27-28, 30, 31, and 33 to read as below. A listing of the pending claims follows:

PENDING CLAIMS

1. (Currently Amended) An intracorporeal device having a protective self-repairing coating on a surface thereof, comprising:
- a. an inner coating component having at least one bilayer formed of different a first ceramic materials material and a second ceramic material different from the first ceramic material on the surface of the device; and
 - b. an outer coating component having at least one layer less than 100 nm thick formed of nano-crystalline aluminum nitride on the inner coating component which forms a water swellable material in an oxygen containing medium.
2. (Cancelled)
3. (Currently Amended) The intracorporeal device of Claim 1 wherein the first and second ceramic materials of ~~the at least one bilayer of the inner coating component~~ are selected from the group consisting of zirconia, titania and alumina.
4. (Previously Amended) The intracorporeal device of Claim 1 wherein the water swellable material is aluminum hydrate or aluminum hydroxide.
5. (Cancelled)
6. (Cancelled)

7. (Previously Amended) The intracorporeal device of Claim 1 wherein individual bilayers of the inner coating component are about one to about 100 nanometers thick.

8. (Previously Amended) The intracorporeal device of Claim 1 wherein the individual bilayers of the inner coating are about one to about 50 nanometers thick.

9. (Previously Amended) The intracorporeal device of claim 1 wherein the inner coating component has at least one bilayer with zirconia in one layer and alumina in the other layer.

E 10. (Previously Amended) The intracorporeal device of Claim 1 wherein the inner coating component has at least one bilayer with zirconia in one layer and titania in the other.

11. (Cancelled)

12. (Previously amended) The intracorporeal device of Claim 1 wherein the inner component has a thickness of up to about a micron.

13. (Previously Amended) The intracorporeal device of Claim 1 wherein each of the inner and outer coating components have a thickness in a range from about 1 to 50 nm.

14. (Previously Amended) The intracorporeal device of Claim 1 wherein the at least one bilayer on the surface of the device includes a nano-scale hardness-imparting ceramic coating layer and a nano-scale toughness-imparting ceramic coating layer.

15. (Previously Amended) The intracorporeal device of Claim 1 wherein each of the harness-imparting and the toughness-impairing coating layer has a thickness independently ranging from about 1 to about 100nm.

16. (Previously Amended) The intracorporeal device of Claim 1 wherein the outer coating component has a thickness in the range from about 1 to less than 100 nm.

17. (Cancelled)

18. (Currently Amended) A nanostructure protective self-repairing coating for a substrate, the coating comprising an outer coating component less than 100 nm thick comprising a compound selected from the group consisting of aluminum nitride, zirconium nitride and hafnium nitride which is capable of forming a hydrate or hydroxide compound upon contact with an oxygen containing environment and an inner coating component secured to the substrate comprising at least one bilayer formed of one a first layer of a first ceramic material and a second layer of a second ceramic material different from the first ceramic material.

19. (Previously Amended) The coating of Claim 18 wherein the compound of the outer coating component comprises aluminum nitride.

20. (Cancelled)

21. (Allowed) An intracorporeal implant, comprising:
a substrate selected from the group consisting of metals, polymers,
and a combination thereof; and
a protective coating thereon having a plurality of coating components comprising

a first coating component having at least one bilayer wherein each layer is formed of a material selected from the group consisting of zirconia and alumina;

a second coating component disposed on the first coating component having at least one bilayer with each layer formed of a material selected from the group consisting of zirconia and titania; and

a third coating component disposed on the second coating component formed of a compound which has microcrystallinity and which is capable of forming a hydrate or hydroxide upon contact with an oxygen containing environment.

22. (Allowed) The Implant of claim 21 wherein the compound is an aluminum compound.

23. (Allowed) The implant of claim 21 wherein the compound is an aluminium nitride.

24. (Allowed) The Implant of Claim 21 wherein the compound selected is aluminum nitride which forms aluminum hydroxide, aluminum hydrate, or mixtures thereof.

25. (Allowed) The implant of Claim 21 wherein the coating thickness is in a range from about 1 to about 100 nanometers.

26. (Allowed) The implant of Claim 21 wherein the coating thickness is in a range from about 1 to 50 nanometers.

27. (Previously Amended) An Intracorporeal implant which has a substrate selected from the group consisting of metals, polymers, and a combination thereof with a protective coating thereon formed of a plurality of nano-scale ceramic

layers with each nano-scale layer formed of one or more compounds selected from the group consisting of zirconia, titania, alumina, and aluminum nitride.

E 28. (Currently Amended) An intracorporeal implant which has a substrate selected from the group consisting of metals, polymers, and a combination thereof, which has an inner coating component secured to the substrate with at least one bilayer formed of ~~one~~ a first layer of a first ceramic material and a second layer of a second ceramic material different from the first ceramic material and which has a protective self-repairing coating thereon with a self sealing outer coating component having a thickness of less than 100 nm, having nano-crystallinity and formed at least in part of a compound selected from the group consisting of aluminum nitride, zirconium nitride and hafnium nitride and capable of forming a hydrate or hydroxide compound upon contact with an oxygen containing environment.

29. (Cancelled)

30. (Previously Amended) The implant of Claim 28 wherein the compound is aluminum nitride.

31. (Previously Amended) The protective coating of Claim 1 wherein the outer coating component is formed at least in part of a nano-crystalline water swellable material.

32. (Cancelled)

33. (Previously Amended) The implant of Claim 28 wherein the coating further includes a plurality of nano-scale ceramic bilayers including a hardness-imparting bilayer and a toughness-imparting bilayer.